glycosaminoglycan gels. The hydrogel layer 22 can contain one or more neurotrophic agents or axon extension-promoting proteins. Such neurotrophic agents can be loaded directly into the hydrogel 22, loaded into microspheres 24, or incorporated into the support or spacers as described herein.--

In the claims:

Please amend claims 1, 17, 34 and 43-46 as follows:

-- 1. A nerve regeneration conduit comprising a porous biocompatible support comprising an inner surface and an outer surface, the support being in the form of a roll such that a cross section of the roll approximates a spiral, with the outer surface of the support facing outward, relative to the origin of the spiral.

17. The nerve regeneration conduit of claim 14, wherein the hydrogel layer comprises a polymer selected from the group consisting of fibrin glues, block ABA copolymers of poly(oxyethylene) and poly(oxypropylene), polyethylene glycol (PEG) hydrogels, agarose gels, PolyHEMA (poly 2-hydroxyethylmethacrylate) hydrogels, PHPMA (poly N-(2-hydroxypropyl) methacrylamide) hydrogels, collagen gels, soluble basement membrane extracts, chitosan gels, gel mixtures comprising two or more of collagen, laminin, and fibronectin, alginate gels, and collagen-glycosaminoglycan gels.

34. A method of manufacturing a nerve regeneration conduit, the method comprising providing a porous biocompatible support comprising an inner surface and an outer surface; and forming the support into a roll such that a cross section of the roll approximates a spiral, with the outer surface of the support facing outward, relative to the origin of the spiral.

43. The nerve regeneration conduit of claim 14, wherein the hydrogel further comprises cells.

44. The nerve regeneration conduit of claim 1, wherein the support further comprises spacer members extending from the inner surface of the support.

45. The nerve regeneration conduit of claim 1, wherein the support is loaded with one or more neurotrophins.

46. The nerve regeneration conduit of claim 45, wherein the one or more neurotrophins are distributed in a gradient in the support. --

Please add claims 47-59.

--47. The method of claim 41 further comprising suspending the cells in the hydrogel prior to depositing the hydrogel on the support.

48. The nerve regeneration conduit of claim 9 wherein the cells are selected from the group consisting of neural stem cells, neural crest stem cells, neuroepithelial cells, neural support cells, bone marrow stromal cells, and fibroblasts genetically engineered to overexpress neurotrophic factors or axonal extension promoting proteins.

49. The nerve regeneration conduit of claim 23 wherein the microspheres comprise PLGA having a lactic acid:glycolic acid ratio in the range of 50:50 to nearly 100:0.

50. The nerve regeneration conduit of claim 9 further comprising a second layer of cells adhered to the outer surface of the support.

51. The method of claim 40 wherein the culturing step comprises culturing cells on both inner and outer surfaces of the support.

52. The nerve regeneration conduit of claim 18 wherein said microspheres comprise blank microspheres.

53. The nerve regeneration conduit of claim 44 wherein the spacers comprise continuous spacers.

54. The nerve regeneration conduit of claim 44 wherein the spacers comprise continuous and discontinuous spacers.

55. The nerve regeneration conduit of claim 44 further comprising positioning microspheres and/or a hydrogel between the spacers.

56. The nerve regeneration conduit of claim 44 further comprising loading one or more neurotrophic agents into the spacers and/or support.

57. The nerve regeneration conduit of claim 56 comprising loading the neurotrophic agents into the spacers in a pattern to facilitate creation of a neurotrophic agent concentration gradient.

58. A method of facilitating regeneration of a crushed nerve, the method comprising providing a porous biocompatible support comprising an inner surface and an outer surface, and rolling the support.

59. A method of facilitating regeneration of a crushed nerve, the method comprising:

providing a porous biocompatible support comprising an inner surface, an outer surface, and spacer members extending from the inner surface,

culturing a layer of cells on the support, and

rolling the support around the crushed nerve.--